

SAFETY DATA SHEET



Uni-ZAP XR Vector Kit, Part Number 237211

Section 1. Identification

1.1 Product identifier

Product name : Uni-ZAP XR Vector Kit, Part Number 237211
Part No. (Chemical Kit) : 237211
Part No. : pBR322 Test Insert Digested With EcoR I 210200-52
 and Sal I
 XL1-Blue MRF' E.coli Strain 200301-81
 SOLR Bacterial Strain 200298-81
 ExAssist Interference-Resistant Helper Phage 200253-81
 VCSM13 Interference-Resistant Helper Phage 200251-81
 Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated 237211-51

Validation date : 3/29/2017

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses : Analytical reagent.
 pBR322 Test Insert Digested With EcoR I and Sal I 10 µl (2.5 µg 0.25 µg/µl)
 XL1-Blue MRF' E.coli Strain 500 µl
 SOLR Bacterial Strain 500 µl
 ExAssist Interference-Resistant Helper Phage 1 ml (>1 x E10 pfu/ml)
 VCSM13 Interference-Resistant Helper Phage 1 ml (>1 x 10e11 pfu/ml)
 Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated 12 µl (12 µg 1 µg/µl)

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : pBR322 Test Insert Digested With EcoR I and Sal I While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
 XL1-Blue MRF' E.coli Strain This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 SOLR Bacterial Strain This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 ExAssist Interference-Resistant Helper Phage While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to

Section 2. Hazards identification

VCSM13 Interference-Resistant Helper Phage

the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture

XL1-Blue MRF' E.coli Strain

H319 EYE IRRITATION - Category 2A

SOLR Bacterial Strain

H319 EYE IRRITATION - Category 2A

2.2 GHS label elements

Hazard pictograms

:



Signal word

: **BR322 Test Insert Digested With EcoR I and Sal I** No signal word.
XL1-Blue MRF' E.coli Strain Warning
SOLR Bacterial Strain Warning
ExAssist Interference-Resistant Helper Phage No signal word.
VCSM13 Interference-Resistant Helper Phage No signal word.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated No signal word.

Hazard statements

: **BR322 Test Insert Digested With EcoR I and Sal I** No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.
SOLR Bacterial Strain GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.
ExAssist Interference-Resistant Helper Phage No known significant effects or critical hazards.
VCSM13 Interference-Resistant Helper Phage No known significant effects or critical hazards.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated No known significant effects or critical hazards.

Precautionary statements

Section 2. Hazards identification

Prevention	:	<p> <input type="checkbox"/> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p> Not applicable. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling. Not applicable. Not applicable. Not applicable. </p>						
		Response	:	<p> <input type="checkbox"/> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p> Not applicable. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention. Not applicable. Not applicable. </p>				
				Storage	:	<p> <input type="checkbox"/> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p> Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. </p>		
						Disposal	:	<p> <input type="checkbox"/> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p> Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. </p>

Section 2. Hazards identification

Supplemental label elements	: <input checked="" type="checkbox"/> BR322 Test Insert Digested With EcoR I and Sal I	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	SOLR Bacterial Strain	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	VCSM13 Interference-Resistant Helper Phage	None known.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	None known.

2.3 Other hazards

Hazards not otherwise classified	: <input checked="" type="checkbox"/> BR322 Test Insert Digested With EcoR I and Sal I	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	SOLR Bacterial Strain	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	VCSM13 Interference-Resistant Helper Phage	None known.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: <input checked="" type="checkbox"/> BR322 Test Insert Digested With EcoR I and Sal I	Mixture
	XL1-Blue MRF' E.coli Strain	Mixture
	SOLR Bacterial Strain	Mixture
	ExAssist Interference-Resistant Helper Phage	Mixture
	VCSM13 Interference-Resistant Helper Phage	Mixture
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Mixture

Ingredient name	%	CAS number
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
SOLR Bacterial Strain		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact

: pBR322 Test Insert Digested With EcoR I and Sal I	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
XL1-Blue MRF' E.coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
SOLR Bacterial Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
ExAssist Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
VCSM13 Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation

: pBR322 Test Insert Digested With EcoR I and Sal I	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
XL1-Blue MRF' E.coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
SOLR Bacterial Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
ExAssist Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
VCSM13 Interference-Resistant	Remove victim to fresh air and keep at rest in a

Section 4. First aid measures

	Helper Phage	position comfortable for breathing. Get medical attention if symptoms occur.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: pBR322 Test Insert Digested With EcoR I and Sal I	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL1-Blue MRF' E.coli Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	SOLR Bacterial Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	ExAssist Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	VCSM13 Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: pBR322 Test Insert Digested With EcoR I and Sal I	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	XL1-Blue MRF' E.coli Strain	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	SOLR Bacterial Strain	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting

Section 4. First aid measures

ExAssist Interference-Resistant Helper Phage	occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
VCSM13 Interference-Resistant Helper Phage	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	Causes serious eye irritation.
SOLR Bacterial Strain	Causes serious eye irritation.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

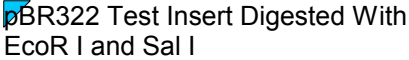


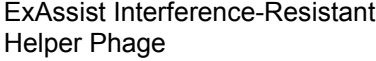
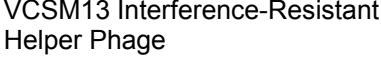
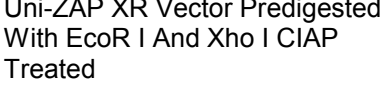
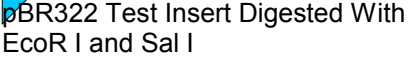


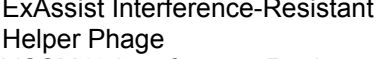
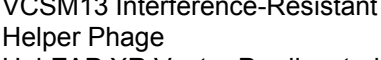
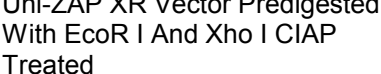
Inhalation

: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
SOLR Bacterial Strain	No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

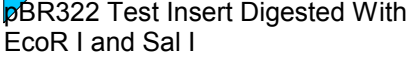


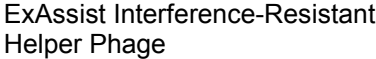
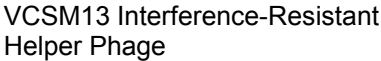
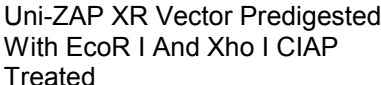
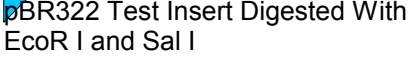
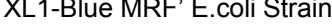

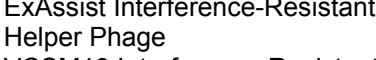
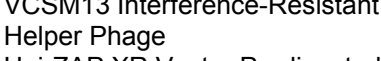
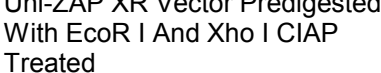
Section 4. First aid measures

Skin contact	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.
Ingestion	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	SOLR Bacterial Strain	Adverse symptoms may include the following: pain or irritation watering redness
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.
Inhalation	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	SOLR Bacterial Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.

Section 4. First aid measures

Skin contact	:	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>		
		Ingestion	:	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	:	<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		<p>  </p>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p>

Section 4. First aid measures

Protection of first-aiders	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	SOLR Bacterial Strain	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain	Use an extinguishing agent suitable for the surrounding fire.
	SOLR Bacterial Strain	Use an extinguishing agent suitable for the surrounding fire.
	ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	None known. None known. None known. None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	SOLR Bacterial Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	ExAssist Interference-Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products

VCSM13 Interference-Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	In a fire or if heated, a pressure increase will occur and the container may burst.
: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
XL1-Blue MRF' E.coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
SOLR Bacterial Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
ExAssist Interference-Resistant Helper Phage	No specific data.
VCSM13 Interference-Resistant Helper Phage	No specific data.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters

: pBR322 Test Insert Digested With EcoR I and Sal I	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
XL1-Blue MRF' E.coli Strain	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
SOLR Bacterial Strain	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
ExAssist Interference-Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
VCSM13 Interference-Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters	: pBR322 Test Insert Digested With EcoR I and Sal I	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	XL1-Blue MRF' E.coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	SOLR Bacterial Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	ExAssist Interference-Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	VCSM13 Interference-Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: pBR322 Test Insert Digested With EcoR I and Sal I	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	XL1-Blue MRF' E.coli Strain	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	SOLR Bacterial Strain	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	ExAssist Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	VCSM13 Interference-Resistant	No action shall be taken involving any personal

Section 6. Accidental release measures

	Helper Phage	risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
For emergency responders :	pBR322 Test Insert Digested With EcoR I and Sal I	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL1-Blue MRF' E.coli Strain	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	SOLR Bacterial Strain	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	ExAssist Interference-Resistant Helper Phage	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	VCSM13 Interference-Resistant Helper Phage	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	: pBR322 Test Insert Digested With EcoR I and Sal I	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	XL1-Blue MRF' E.coli Strain	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	SOLR Bacterial Strain	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	ExAssist Interference-Resistant Helper Phage	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	VCSM13 Interference-Resistant Helper Phage	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 6. Accidental release measures

Uni-ZAP XR Vector Predigested
With EcoR I And Xho I CIAP
Treated

Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: pBR322 Test Insert Digested With EcoR I and Sal I	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	XL1-Blue MRF' E.coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	SOLR Bacterial Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	ExAssist Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	VCSM13 Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: pBR322 Test Insert Digested With EcoR I and Sal I	Put on appropriate personal protective equipment (see Section 8).
	XL1-Blue MRF' E.coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers

Section 7. Handling and storage

Advice on general occupational hygiene

SOLR Bacterial Strain	<p>retain product residue and can be hazardous. Do not reuse container.</p> <p>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</p>
<p>ExAssist Interference-Resistant Helper Phage</p> <p>VCSM13 Interference-Resistant Helper Phage</p> <p>Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated</p>	<p>Put on appropriate personal protective equipment (see Section 8).</p> <p>Put on appropriate personal protective equipment (see Section 8).</p> <p>Put on appropriate personal protective equipment (see Section 8).</p>
: pBR322 Test Insert Digested With EcoR I and Sal I	<p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
XL1-Blue MRF' E.coli Strain	<p>Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
SOLR Bacterial Strain	<p>Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
ExAssist Interference-Resistant Helper Phage	<p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
VCSM13 Interference-Resistant Helper Phage	<p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	<p>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment</p>

Section 7. Handling and storage

before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: pBR322 Test Insert Digested With EcoR I and Sal I	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
XL1-Blue MRF' E.coli Strain	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
SOLR Bacterial Strain	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
ExAssist Interference-Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
VCSM13 Interference-Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been

Section 7. Handling and storage

opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

: <input type="checkbox"/>	pBR322 Test Insert Digested With EcoR I and Sal I	Industrial applications, Professional applications.
	XL1-Blue MRF' E.coli Strain	Industrial applications, Professional applications.
	SOLR Bacterial Strain	Industrial applications, Professional applications.
	ExAssist Interference-Resistant Helper Phage	Industrial applications, Professional applications.
	VCSM13 Interference-Resistant Helper Phage	Industrial applications, Professional applications.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Industrial applications, Professional applications.

Industrial sector specific solutions

: <input type="checkbox"/>	pBR322 Test Insert Digested With EcoR I and Sal I	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	SOLR Bacterial Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	VCSM13 Interference-Resistant Helper Phage	Not applicable.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol Sodium chloride SOLR Bacterial Strain Glycerol Sodium chloride	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None. OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None.

Section 8. Exposure controls/personal protection

8.2 Exposure controls

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : pBR322 Test Insert Digested With EcoR I and Sal I Liquid.
 XL1-Blue MRF' E.coli Strain Liquid.
 SOLR Bacterial Strain Liquid.
 ExAssist Interference-Resistant Helper Phage Liquid.
 VCSM13 Interference-Resistant Helper Phage Liquid.
 Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated Liquid.

Section 9. Physical and chemical properties

Color	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.
Odor	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.
Odor threshold	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.
pH	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	7.5 7 7 7.5 7.5 7.5
Melting point	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	0°C (32°F) Not available. Not available. 0°C (32°F) 0°C (32°F) 0°C (32°F)

Section 9. Physical and chemical properties

Boiling point	: pBR322 Test Insert Digested With EcoR I and Sal I	100°C (212°F)
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	100°C (212°F)
	VCSM13 Interference-Resistant Helper Phage	100°C (212°F)
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	100°C (212°F)
Flash point	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.
Evaporation rate	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.
Flammability (solid, gas)	: pBR322 Test Insert Digested With EcoR I and Sal I	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	SOLR Bacterial Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	VCSM13 Interference-Resistant Helper Phage	Not applicable.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not applicable.
Lower and upper explosive (flammable) limits	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.

Section 9. Physical and chemical properties

Vapor pressure	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.
Vapor density	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.
Relative density	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.
Solubility	: pBR322 Test Insert Digested With EcoR I and Sal I	Easily soluble in the following materials: cold water and hot water.
	XL1-Blue MRF' E.coli Strain	Soluble in the following materials: cold water and hot water.
	SOLR Bacterial Strain	Soluble in the following materials: cold water and hot water.
	ExAssist Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
	VCSM13 Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: pBR322 Test Insert Digested With EcoR I and Sal I	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available.





Section 9. Physical and chemical properties

Auto-ignition temperature	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.
Viscosity	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	Not available. Not available. Not available. Not available. Not available. Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage	The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.

Section 10. Stability and reactivity

	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	The product is stable.
10.3 Possibility of hazardous reactions	<ul style="list-style-type: none"> :  pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated 	<p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p>
10.4 Conditions to avoid	<ul style="list-style-type: none"> :  pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated 	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
10.5 Incompatible materials	<ul style="list-style-type: none"> :  pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated 	<p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>
10.6 Hazardous decomposition products	<ul style="list-style-type: none"> :  pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant 	<p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use,</p>

Section 10. Stability and reactivity

Helper Phage

hazardous decomposition products should not be produced.

Uni-ZAP XR Vector Predigested
With EcoR I And Xho I CIAP
TreatedUnder normal conditions of storage and use,
hazardous decomposition products should not be
produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
XL1-Blue MRF' E.coli Strain				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
SOLR Bacterial Strain				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
XL1-Blue MRF' E.coli Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
SOLR Bacterial Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

<p> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p>Not available.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Not available.</p> <p>Not available.</p> <p>Not available.</p>
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Potential acute health effects

Eye contact

<p> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p>No known significant effects or critical hazards.</p> <p>Causes serious eye irritation.</p> <p>Causes serious eye irritation.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
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Inhalation

<p> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
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Skin contact

<p> pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated </p>	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
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Section 11. Toxicological information

Ingestion	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	SOLR Bacterial Strain	Adverse symptoms may include the following: pain or irritation watering redness
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.
Inhalation	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	SOLR Bacterial Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.
Skin contact	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	SOLR Bacterial Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.

Section 11. Toxicological information

Ingestion	: pBR322 Test Insert Digested With EcoR I and Sal I	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	SOLR Bacterial Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	VCSM13 Interference-Resistant Helper Phage	No specific data.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

Carcinogenicity	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

Mutagenicity	: pBR322 Test Insert Digested With EcoR I and Sal I	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	SOLR Bacterial Strain	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	VCSM13 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards.

Section 11. Toxicological information

Teratogenicity	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: pBR322 Test Insert Digested With EcoR I and Sal I XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain ExAssist Interference-Resistant Helper Phage VCSM13 Interference-Resistant Helper Phage Uni-ZAP XR Vector Predigested With EcoR I And Xho I CIAP Treated	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
XL1-Blue MRF' E.coli Strain Oral	300000 mg/kg
SOLR Bacterial Strain Oral	300000 mg/kg

Section 12. Ecological information

12.1 Toxicity

Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
XL1-Blue MRF' E.coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks
	SOLR Bacterial Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss
Acute EC50 2430000 µg/l Fresh water		Algae - Navicula seminulum	96 hours
Acute EC50 28.85 mg/dm ³ Fresh water		Algae - Pseudokirchneriella subcapitata	72 hours
Acute EC50 519.6 mg/l Fresh water		Crustaceans - Cypris subglobosa	48 hours
Acute IC50 6.87 g/L Fresh water		Aquatic plants - Lemna minor	96 hours
Acute LC50 1.56 g/L Fresh water		Daphnia - Daphnia magna	48 hours
Acute LC50 1000000 µg/l Fresh water		Fish - Morone saxatilis - Larvae	96 hours
Chronic LC10 781 mg/l Fresh water		Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
Chronic NOEC 6 g/L Fresh water		Aquatic plants - Lemna minor	96 hours
Chronic NOEC 0.314 g/L Fresh water		Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water		Fish - Gambusia holbrooki - Adult	8 weeks

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
XL1-Blue MRF' E.coli Strain Glycerol	-1.76	-	low
SOLR Bacterial Strain Glycerol	-1.76	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : United States inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CWA) 311: Edetic acid

Clean Air Act Section 112 : Not listed
(b) Hazardous Air
Pollutants (HAPs)

Clean Air Act Section 602 : Not listed
Class I Substances

Clean Air Act Section 602 : Not listed
Class II Substances

DEA List I Chemicals : Not listed
(Precursor Chemicals)

DEA List II Chemicals : Not listed
(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Section 15. Regulatory information

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
XL1-Blue MRF' E.coli Strain						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.
SOLR Bacterial Strain						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.

State regulations

- Massachusetts** : The following components are listed: GLYCERINE MIST
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
XL1-Blue MRF' E.coli Strain				
Tetracycline	No.	Yes.	No.	No.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : Not determined.
- Canada inventory** : Not determined.
- China** : Not determined.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.
- Malaysia** : Not determined.
- New Zealand** : Not determined.

Section 15. Regulatory information

Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: <input checked="" type="checkbox"/> All components are listed or exempted.
Turkey	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue	: 03/29/2017
Date of previous issue	: 07/20/2015.
Version	: 2

Indicates information that has changed from previously issued version.

Notice to reader

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